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PCT/JP2002/007376

PATENT COOPERATION TREATY



Translation

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 15031	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2002/007376	International filing date (day/month/year) 22 July 2002 (22.07.2002)	Priority date (day/month/year) 13 March 2002 (13.03.2002)
International Patent Classification (IPC) or national classification and IPC G01N 22/02		
Applicant BURN-AM CO., LTD.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 02 October 2003 (02.10.2003)	Date of completion of this report 07 April 2004 (07.04.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description: _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims: _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings: _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description: _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

See supplemental sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☒ the parts relating to claims Nos. 1-3, 6-16

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV. 3.

Group 1

Claims 1 to 3 and 6 to 16 describe an invention that inspects an underground area around the entire periphery of a buried pipe by causing an antenna to rotate.

Group 2

Claims 4 and 5 describe an invention that inspects only an underground area lying above an underground pipe, wherein an antenna is held in a manner allowing it to be raised and lowered, rather than being held by a mechanism for rotating the antenna.

Group 3

Claims 17 to 24 pertain to a mechanism for causing a probe part to move, but do not describe an invention that causes an antenna to rotate or holds an antenna in a manner allowing it to be raised and lowered.

Therefore, this international application does not pertain to one invention or to a group of inventions so linked as to form a single general inventive concept, and thus, does not fulfill the requirement of unity of invention.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-3, 6-16	YES
	Claims		NO
Inventive step (IS)	Claims	7, 13	YES
	Claims	1-3, 6, 8-12, 14-16	NO
Industrial applicability (IA)	Claims	1-3, 6-16	YES
	Claims		NO

2. Citations and explanations

- Document 1: JP 8-178907 A (Sekisui Chemical Co., Ltd.),
12 July 1996
- Document 2: JP 3-235084 A (Katsutoshi Sakai), 21 October
1991
- Document 3: JP 10-2969 A (Fuji Chichu Joho K.K.), 6
January 1998
- Document 4: JP 64-54216 A (NKK Corp.), 1 March 1989
- Document 5: JP 4-136703 A (NKK Corp.), 11 May 1992
- Document 6: JP 2-59649 A (Kido Gijutsu Kenkyusho K.K.),
28 February 1990
- Document 7: JP 9-61421 A (Japan Sewage Works Agency), 7
March 1997
- Document 8: JP 9-254782 A (Sapporo-shi), 30 September
1997

Claim 1, documents 1 and 2

Document 1 cited in the international search report discloses a device for inspecting a buried pipe equipped with a cavity sensor for searching for cavities present around the periphery of the buried pipe, wherein the device is further equipped with a self-propelled cart that travels the pipeline of the buried pipe, an aboveground means for controlling the travel of said self-propelled cart, a means for performing processing of measured data,

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and a means for causing the aforementioned cavity sensor to rotate along the inner periphery of the aforementioned buried pipe.

Further, document 1 also discloses the use of a cavity sensor that makes use of electromagnetic waves, and the use of an antenna to generate electromagnetic waves when performing a buried pipe inspection that makes use of electromagnetic waves is a known convention in the art (see, for example, document 2 cited in the international search report), and thus, a person skilled in the art could easily conceive of adapting the invention disclosed in document 1 by applying a constitution wherein an antenna is used as the cavity sensor, thereby producing the invention described in claim 1.

Claim 2, documents 1 and 2

Document 1 also discloses a height adjustment mechanism for adjusting the height of the cavity sensor.

Therefore, a person skilled in the art could easily conceive of the invention described in claim 2 from the invention disclosed in document 1 and the aforementioned known convention.

Claim 3, documents 1 and 2

Document 1 also discloses the three-dimensional display of measured data (corresponding to two-dimensional display in a plurality of directions). Further, as disclosed in document 2, the provision of a means for detecting the position of an antenna is a known convention in the art.

Claims 6 and 8, documents 1 to 3

In the technical field of buried pipe inspections that make use of electromagnetic waves, mounting a camera on a self-propelled cart that travels through a pipeline,

and inspecting the condition of the interior of the pipeline using the video image while simultaneously searching for cavities are known conventions in the art (see, for example, document 3 cited in the international search report), and thus, adopting the aforementioned known conventions in the invention disclosed in document 1 is not recognized as posing any particular difficulty.

Therefore, a person skilled in the art could easily conceive of the invention described in claims 6 and 8 from the invention disclosed in document 1 and the aforementioned known conventions.

Claim 9, documents 1, 2, 4, and 5

In the technical field of buried pipe inspections, adding an encoder for measuring the distance a self-propelled cart has traveled is a known convention in the art (see, for example, documents 4 and 5 cited in the international search report), and thus, adopting the aforementioned known convention in the invention disclosed in document 1 is not recognized as posing any particular difficulty. Further, adopting an infrared encoder as the encoder is not recognized as achieving any special effect particular to the present invention.

Therefore, a person skilled in the art could easily conceive of the invention described in claim 9 from the invention disclosed in document 1 and the aforementioned known convention.

Claim 10, documents 1 to 3 and 6

A technique for inspecting for deterioration of the concrete of a buried pipe wherein a means for spraying a reagent and a means for observing the appearance of colors that differ according to the presence of or lack of deterioration are mounted on a self-propelled cart is a known convention in the art (see, for example, document 6

cited in the international search report). Further, an inspection approach wherein a plurality of inspection techniques are used to inspect the object of the inspection in a multi-faceted manner is standard practice in the art, and thus, a person skilled in the art could easily conceive of adapting the invention disclosed in document 1 such that the aforementioned known inspection for deterioration is performed in combination with an inspection for cavities around the buried pipe.

Therefore, a person skilled in the art could easily conceive of the invention described in claim 10 from the invention disclosed in document 1 and the aforementioned known convention.

Claims 11 and 12, documents 1 to 3, 6, 7, and 8

A feature wherein presence of or lack of deterioration resulting from sulfuric acid is assessed according to the color reaction of a reagent is a known convention in the art as a technique for inspecting for deterioration of concrete (see, for example, document 7 cited in the international search report).

Further, a technique for inspecting the interior of a pipeline wherein a sensor for detecting toxic gases such as hydrogen sulfide is added to inspection equipment is a known convention in the art (see, for example, document 8 cited in the international search report).

Therefore, a person skilled in the art could easily conceive of the invention described in claims 11 and 12 from the invention disclosed in document 1 and the aforementioned known conventions.

Claims 14 to 16, documents 1 to 6

The features stipulated in claims 14 to 16 are, as already discussed, known conventions in the art.

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Therefore, a person skilled in the art could easily conceive of the inventions described in claims 14 to 16 from the invention disclosed in document 1 and the aforementioned known conventions.

Claims 7 and 13

The invention described in claims 7 and 13 is not disclosed in any of the documents cited in the international search report, nor would it be obvious to a person skilled in the art.